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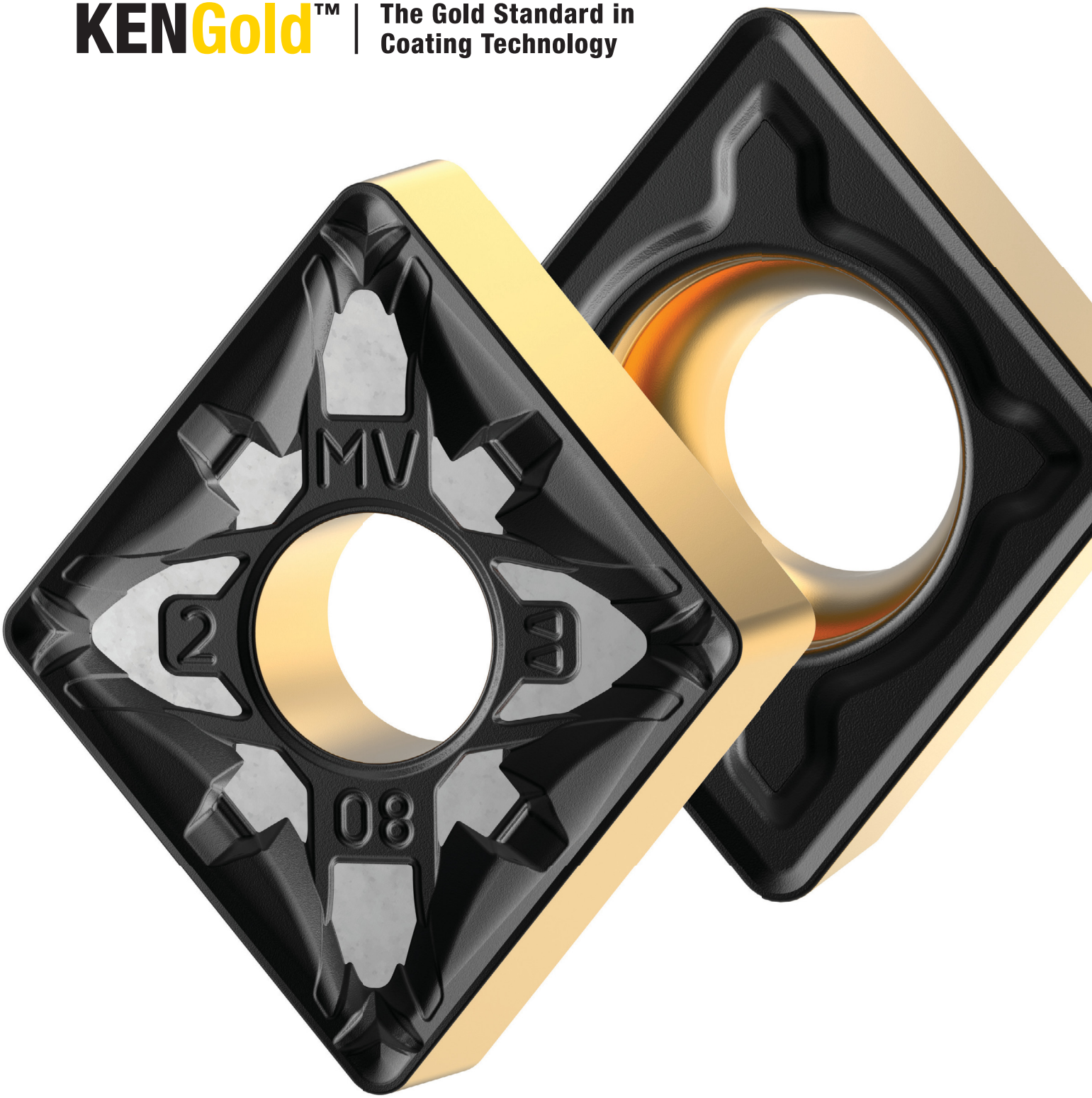
KENNAMETAL®

KENGold™ | The Gold Standard in Coating Technology



INNOVATIONS 2024 | INCH

NEW COATING TECHNOLOGY FOR TURNING APPLICATIONS

KENGold™

ISO Turning

KENGold KCP25C Grade protects against flank wear.

KENGold KCP25C Grade offers easy identification of worn and/or unused edges.

KENGold KCP25C Grade resists wear and provides a strong thermal barrier.

KENGold KCP25C Grade increases output rate reliability and has consistent tool life.

INNOVATIONS

CAS — Customer Application Support

Get Fast and Reliable Answers to Your Toughest Problems

Our CAS Team is the metalworking industry's leading help desk resource for tooling application solutions and problem resolution.

Easy Access to Proven Metalworking Expertise!

Kennametal Application Engineers assist customers and engineering groups throughout the world with expert tool selection and application recommendations for the entire range of Kennametal tooling.

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	Malaysia	English	1800 812 990	ap-kmt.techsupport@kennametal.com
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2. Watch videos
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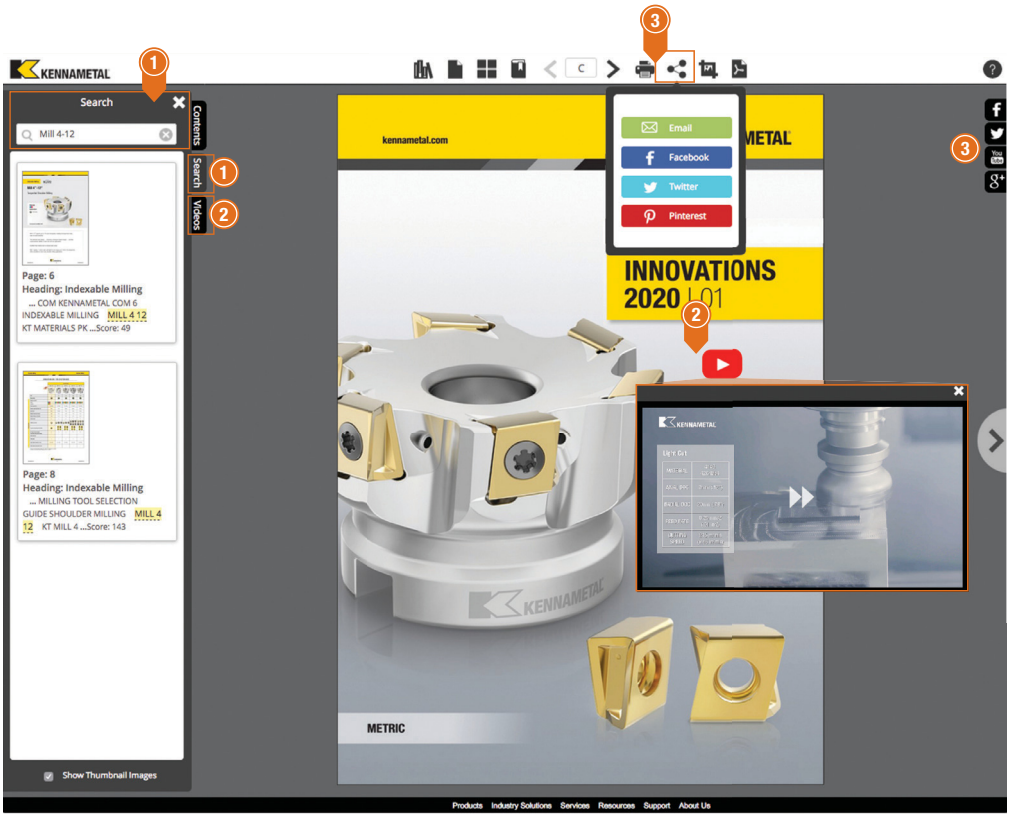

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KENNAMETAL®

POWERED BY NOVO KENNAMETAL

KENGold™

CVD Coating Technology for ISO Turning Applications

Materials

P

Applications

- Turning
- Boring
- Back Boring
- Profiling
- Facing
- I.D. Facing
- Chamfer Turning

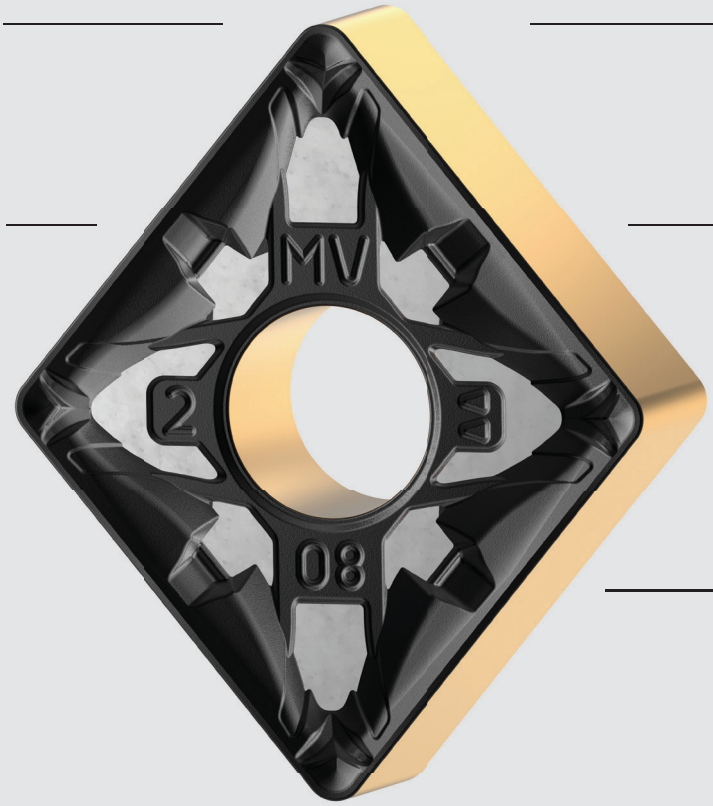
KENGold is a multilayer coating technology featuring uniform layers that resist abrasion, provide a strong thermal barrier, improve edge toughness, and allow for easy detection of wear due to its gold flank.

Applied to the KCP25C turning insert grade, in combination with enhanced edge preparation features, customers will experience more reliable and consistent tool life.

This medium-temperature coating technology is comprised of TiCN-Al_2O_3. The composition can be broken down into four layers, each with unique protection properties:

Protects against flank wear

Offers easy identification of worn and/or unused edges (reducing waste)



Resists wear (abrasion, chipping) and provides a strong thermal barrier

Increases output rate reliability and has consistent tool life

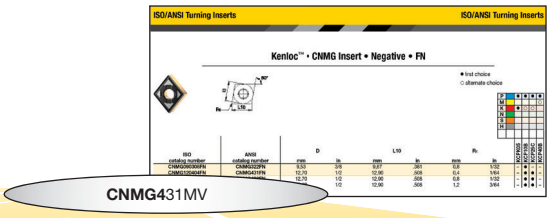
NEW!
MV geometry for medium versatile applications

- The outermost layer protects against flank wear and enables wear identification with its gold color TiCN top layer. This improves abrasion resistance within the KCP25C grade.
- The second layer is comprised of a black Al_2O_3 coating with a recently developed uniform nanostructure to act as a strong thermal barrier that resists wear.
- The third layer is a transition layer that bonds the tough and wear-resistant layers.
- The fourth layer resists chipping with its highly uniform crystal structure within the medium-temperature TiCN coating layer. This also enables improved toughness and greater wear resistance.

ISO/ANSI Turning Inserts

ISO Inserts • Catalog Numbering System

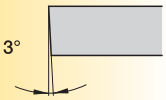
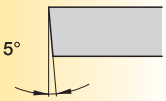
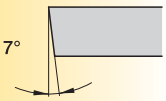
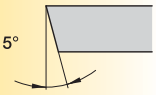
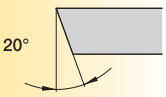
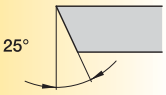
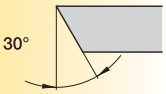
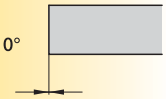
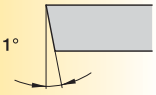
Each character in our catalog number signifies a specific trait of that product. Use the following key columns and corresponding images to easily identify which attributes apply.



C — Insert Shape

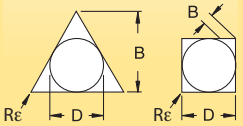
H	Hexagon 120°	
O	Octagon 135°	
P	Pentagon 108°	
R	Round —	
S	Square 90°	
T	Triangular 60°	
C D E M V	Rhomboid 80° 55° 75° 86° 35°	
W	Trigon 80° with enlarged corner angles	
L	Rectangular 90°	
A B N/K	Parallelogram 85° 82° 55°	

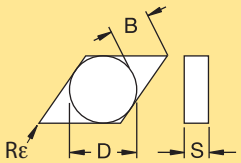
N — Insert Clearance Angle

A	3°	
B	5°	
C	7°	
D	15°	
E	20°	
F	25°	
G	30°	
N	0°	
P	11°	
O	Indicated for other clearance angles requiring descriptions.	

M — Tolerance Class

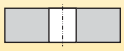
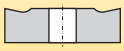
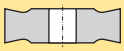
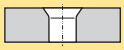
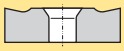
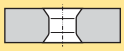
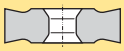
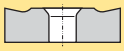
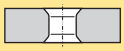
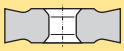
Tolerances apply prior to edge prep and coating.





D = Theoretical diameter of the insert inscribed circle
S = Thickness
B = See figures below

G — Insert Features

N	
R	
F	
A	
M	
G	
W	
T	
Q	
U	
B	
H	
C	
J	
X	Special Design

4 — Size

Code for inch cutting edge length "L10"

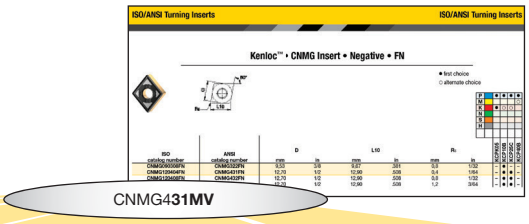
inch	"D" inch	C	D	R	S	T	V	W
1.2 (5)	5/32	S4	04	03	03	06	—	—
1.5 (6)	3/16	04	05	04	04	08	08	S3
1.8 (7)	7/32	05	06	05	05	09	09	03
—	.236	—	—	06	—	—	—	—
2	1/4	06	07	06	06	11	11	04
2.5	5/16	08	09	07	07	13	13	05
—	.315	—	—	08	—	—	—	—
3	3/8	09	11	09	09	16	16	06
—	.394	—	—	10	—	—	—	—
3.5	7/16	11	13	11	11	19	19	07
—	.472	—	—	12	—	—	—	—
4	1/2	12	15	12	12	22	22	08
4.5	9/16	14	17	14	14	24	24	09
5	5/8	16	19	15	15	27	27	10
—	.630	—	—	16	—	—	—	—
5.5	11/16	17	21	17	17	30	30	11
6	3/4	19	23	19	19	33	33	13
—	.787	—	—	20	—	—	—	—
7	7/8	22	27	22	22	38	38	15
—	.984	—	—	25	—	—	—	—
8	1	25	31	25	25	44	44	17
10	1-1/4	32	38	31	31	54	54	21
—	1.260	—	—	32	—	—	—	—

tolerance class	tolerance on "D"	tolerance on "B"	tolerance on "S"
C	±.0010"	±.0005"	±.001"
H	±.0005"	±.0005"	±.001"
E	±.0010"	±.0010"	±.001"
G	±.0010"	±.0010"	±.005"
M	See tables on next page		±.005"
U	See tables on next page		±.005"

ISO/ANSI Turning Inserts

ISO Inserts • Catalog Numbering System

(continued)



3	1			MV
Thickness S	Corner Radius "Rε"	Hand of Insert *(optional)*	Cutting Edge *(optional)*	Chipbreaker *(optional)*

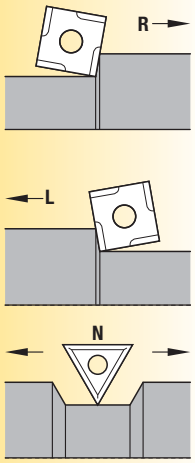
symbol	thickness
inch	inch
.5 (1)	1/32
.6	.040
1 (2)	1/16
1.2	5.64
1.5	3/32
2	1/8
2.5	5/32
3	3/16
3.5	7/32
4	1/4
5	5/16
6	3/8
7	7/16
18	1/2

symbol	corner radius
inch	inch
X0	.0015
0	.004
.5	.008
1	1/64
2	1/32
3	3/64
4	1/16
5	5/64
6	3/32
7	7/64
8	1/8
—	round insert
—	

R = Right hand

L = Left hand

N = Neutral



F Sharp

E Rounded

T Chamfered

S Chamfered and Rounded

K Double-Chamfered

P Double-Chamfered and Rounded

F = Sharp

FF = Fine Finishing

FN = Finishing Negative

MV = Medium Versatile

MN = Medium Negative

MR = Medium Roughing

RN = Roughing Negative

UN = Universal Medium

FP = Finishing Positive

MP = Medium Positive

RP = Roughing Positive

RM = Roughing Medium

RH = Roughing Heavy

FW = Finishing Wiper

MW = Medium Wiper

FS = Finishing Sharp

MS = Medium Sharp

RW = Roughing Wiper

HP = High Positive

UP = Universal Positive

K = Light-Feed Chip Control

UF = Ultra-Fine Finishing

LF = Light Finishing

MF = Medium Finishing

E = Hone Only

T = Negative Land

S = Negative Land Plus Hone

MP-K = Medium Positive

MG-P = Medium Positive

	± Tolerance on "D"			
	Class M Tolerance			Class U Tolerance
"D"	Shapes S, T, C, R, & W	Shape D	Shape V	Shapes S, T, & C
inch	inch	inch	inch	inch
5/32	.002	–	–	–
3/16	.002	–	–	.003
7/32	.002	.002	.002	.003
1/4	.002	.002	.002	.003
5/16	.002	.002	.002	.003
3/8	.002	.002	.002	.003
7/16	.003	.003	.003	.005
1/2	.003	.003	.003	.005
9/16	.003	.003	.003	.005
5/8	.004	.004	.004	.007
11/16	.004	.004	.004	.007
3/4	.004	.004	.004	.007
7/8	.005	–	–	.010
1	.005	–	–	.010
1 1/4	.006	–	–	.010

	± Tolerance on "B"			
	Class M Tolerance			Class U Tolerance
"D"	Shapes S, T, C, R, & W	Shape D	Shape V	Shapes S, T, & C
inch	inch	inch	inch	inch
5/32	.003	–	–	–
3/16	.003	–	–	.005
7/32	.003	.004	–	.005
1/4	.003	.004	–	.005
5/16	.003	.004	–	.005
3/8	.003	.004	.007	.005
7/16	.005	.006	–	–
1/2	.005	.006	.010	.008
9/16	.005	.006	–	–
5/8	.006	.007	–	.011
11/16	.006	.007	–	.011
3/4	.006	.007	–	.011
7/8	.006	–	–	.015
1	.007	–	–	.015
1 1/4	.008	–	–	.015

ISO/ANSI Turning Inserts

Turning Grades • Catalog Numbering System

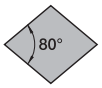
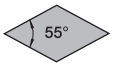
A system of grades, geometries, and application guidelines to provide optimal solutions for your metalcutting needs. It's easy to determine which Kennametal chip-control cutting tool will work best in your specific workpiece materials and applications!

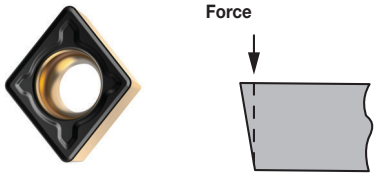
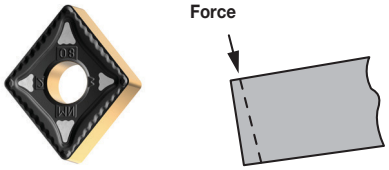
K	C	P	M	25	B
Brand	Insert Material	Primary Workpiece Material *(ISO 513)*	Secondary Workpiece Material *(optional)*	Application Range	Coating Generation
K = Kennametal		P Steel M Stainless Steel K Cast Iron N Non-Ferrous S High-Temp Alloys H Hardened Materials U Universal Machining			**B** = Beyond™ Drive™ **C** = KENGold™ etc.
	Blank = Carbide, uncoated **C** = Carbide, coated **T** = Cermet **Y** = Ceramic **D** = PCD **B** = PcBN		Hardest 5 fine finishing 10 finishing 15 20 medium to roughing 25 30 roughing 35 40 45 heaviest roughing 50 Toughest		

NOTE: Application range does not apply to PcBN grades.

ISO/ANSI Turning Inserts

Turning Technical Tips

	High ← Stability → Low						
Insert Shape	**R** **Round**	**S** **Square**	**C** **Rhombic**	**W** **Trigon**	**T** **Triangular**	**D** **Rhombic**	**V** **Rhombic**
							
Clamping Stability	++	++++	+++	++	++	+	+
Application	• Length, Face, and Profile Turning • High-Feed Capability	• Length and Face Turning	• Length, Face, and 90º Shoulder Turning	• Length, Face, and 90º Shoulder Turning	• Length, Face, Undercut, and 90° Shoulder Turning	• Length, Face, Undercut, and 90° Shoulder Turning	• Length, Face, Undercut, and 90° Shoulder Turning

	Positive Style Screw-On Inserts	**Negative Style Kenloc™ Inserts**
		
Advantages	• Shears metal, free cutting action. • Directs chip away from workpiece, generates less heat. • Less horsepower consumption, ideal for smaller and medium lathes.	• Strong cutting edge withstands higher cutting forces. • More mass to dissipate heat. • Double-sided design, more cutting edges. • Higher metal removal rate capability, ideal for medium to large lathes.
Disadvantages	• Smaller cross section at point of contact, less cutting edge stability. • Single-sided design, fewer cutting edges. • Transverse rupture strength versus compressive strength.	• Compresses metal and directs chip towards workpiece. • High pressure required. • Higher horsepower consumption. • Generates more heat.
Application Recommendation	• Medium to fine finishing. • Smooth cuts. • Instable cutting conditions. • OD of small parts and shallow grooves. • First choice for ID applications.	• Roughing to semi finishing. • Interrupted cuts. • Stable workpiece clamping. • OD and ID of diameter larger than 1.26"/32mm.

ISO/ANSI Turning Inserts

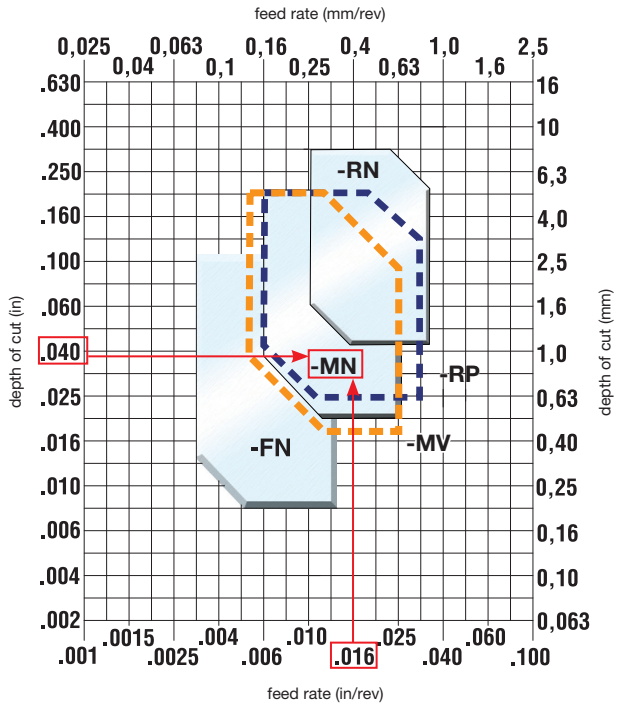
Selection Guide

1 Select the insert geometry

Given: depth of cut = .040" (1mm)
feed rate = .016 IPR (0,4mm)

Unknown: **insert geometry**
Solution: -MN

= *Example*



Negative Inserts

Roughing

RN – Roughing Negative

RP – Roughing Positive

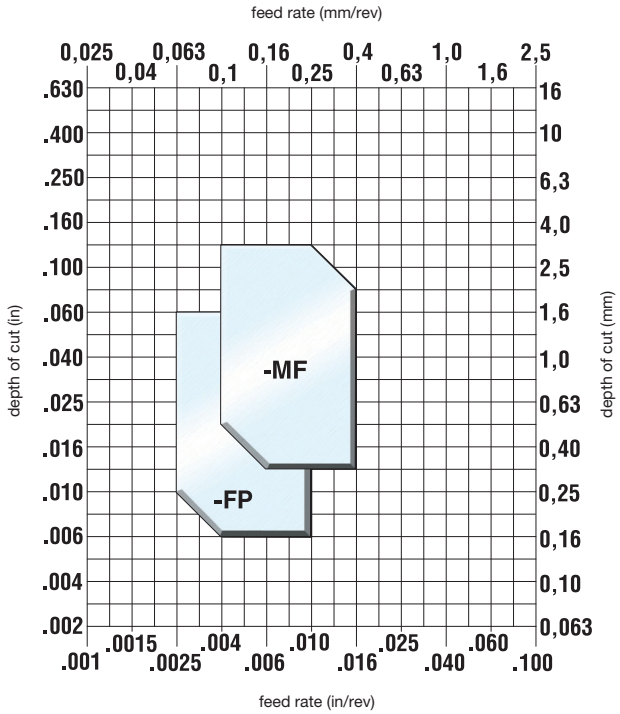
Medium Machining

MV – Medium Versatile

MN – Medium Negative

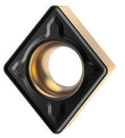
Finishing

FN – Finishing Negative



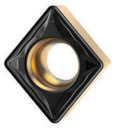
Positive Inserts

Medium Machining



MF – Medium Finishing

Finishing



FP – Finishing Positive

ISO/ANSI Turning Inserts

Selection Guide

(continued)

2 Select the grade

Given: cutting conditions: lightly interrupted cut
Geometry: -MN

Unknown: grade
Solution: KCP25C

= Example

Cutting Condition	Negative Insert					Positive Insert	
	FN	MV	MN	RP	RN	FP	MF
Heavily Interrupted Cut	KCP25C	KCP40B	KCP40B	KCP40B	KCP40B	KCP25C	KCP25C
Lightly Interrupted Cut	KCP25C	KCP25C	KCP25C	KCP25C	KCP25C	KCP25C	KCP25C
Varying Depth of Cut, Casting, or Forging Skin	KCP10B	KCP10B	KCP10B	KCP10B	KCP10B	KCP10B	KCP10B
Smooth Cut, Pre-Turned Surface	KCP10B	KCPK05	KCP10B	KCPK05	KCPK05	KCP10B	KCP10B

3 Select the cutting speed

Given: grade KCP25C
cutting conditions
material CK15

Unknown: cutting speed
Solution: 1080 SFM (330 m/min)

= Example

Low-Carbon (<0.3% C) and Free-Machining Steel — speed — m/min (SFM) — Starting Conditions

material group	grade	135 (450)	180 (600)	225 (750)	275 (900)	320 (1050)	360 (1200)	410 (1350)	455 (1500)	495 (1650)	m/min	SFM
P0/P1	KCPK05										405	1330
	KCP10B										395	1300
	KCP25C										330	1080
	KCP40B										210	700

Medium- and High-Carbon Steels (>0.3% C) — speed — m/min (SFM) — Starting Conditions

material group	grade	135 (450)	180 (600)	225 (750)	275 (900)	320 (1050)	360 (1200)	410 (1350)	455 (1500)	495 (1650)	m/min	SFM
P2	KCPK05										280	920
	KCP10B										265	870
	KCP25C										235	770
	KCP40B										150	500

Alloy Steels and Tool Steels (≤330 HB) (≤35 HRC) — speed — m/min (SFM) — Starting Conditions

material group	grade	135 (450)	180 (600)	225 (750)	275 (900)	320 (1050)	360 (1200)	410 (1350)	455 (1500)	495 (1650)	m/min	SFM
P3	KCPK05										195	640
	KCP10B										190	620
	KCP25C										185	610
	KCP40B										120	400

Alloy Steels and Tool Steels (340–450 HB) (36–48 HRC) — speed — m/min (SFM) — Starting Conditions

material group	grade	60 (200)	90 (300)	120 (400)	150 (500)	180 (600)	210 (700)	240 (800)	270 (900)	300 (1000)	m/min	SFM
P4	KCPK05										155	510
	KCP10B										145	480
	KCP25C										125	410
	KCP40B										95	310

Ferritic, Martensitic, and PH Stainless Steels (≤330 HB) (≤35 HRC) — speed — m/min (SFM) — Starting Conditions

material group	grade	120 (400)	150 (500)	180 (600)	210 (700)	240 (800)	270 (900)	300 (1000)	330 (1100)	360 (1200)	m/min	SFM
P5	KCPK05										230	750
	KCP10B										215	710
	KCP25C										235	770
	KCP40B										135	440

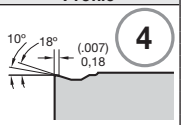
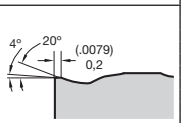
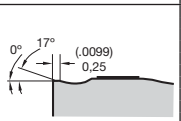
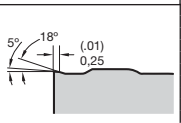
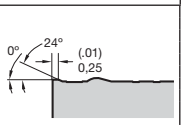
Ferritic, Martensitic, and PH Stainless Steels (340–450 HB) (36–48 HRC) — speed — m/min (SFM) — Starting Conditions

material group	grade	105 (350)	135 (450)	165 (550)	195 (650)	225 (750)	255 (850)	285 (950)	315 (1050)	345 (1150)	m/min	SFM
P6	KCPK05										190	620
	KCP10B										180	590
	KCP25C										180	590
	KCP40B										105	340

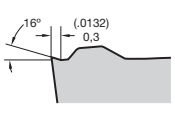
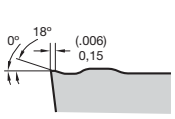
ISO/ANSI Turning Inserts

Chip Control Geometries

Kenloc™ Inserts

Type of Operation	Insert Geometry (3)			Profile	feed rate — in (mm)											
					.0015 (0,04)	.0025 (0,063)	.004 (0,1)	.006 (0,16)	.010 (0,25)	.016 (0,4)	.025 (0,63)	.040 (1,0)	.060 (1,6)	.100 (2,5)	.200 (5,0)	
					.004 (0,1)	.006 (0,16)	.010 (0,25)	.016 (0,4)	.025 (0,63)	.040 (1,0)	.060 (1,6)	.100 (2,5)	.160 (4,0)	.250 (6,3)	.500 (10,0)	
					depth of cut — in (mm)											
(1) Finishing	(2) MG-FN	P M K N S H		 (4)	(5) .003–.012 (0,08–0,3)											
					(6) .008–.125 (0,2–3,0)											
Medium Machining	MG-MV	P K			.006–.02 (0,15–0,50)											
					.02–.22 (0,50–5,5)											
Medium Machining	MG-MN	P			.008–.0125 (0,12–0,6)											
					.012–.200 (0,3–5,0)											
Roughing	MG-RP	P K			.007–.028 (0,18–0,7)											
					.024–.200 (0,6–5,0)											
Roughing	MG-RN	P K			.010–.030 (0,25–0,8)											
					.045–.275 (1,1–7,0)											

Screw-On Inserts

Finishing	MT-FP	P M K S			.0025–.010 (0,063–0,25)											
					.006–.060 (0,16–1,6)											
Medium Machining	MT-MF	P M K S			.004–.016 (0,1–0,4)											
					.012–.125 (0,32–3,2)											

(1) **Machining Operation —** for what the insert geometry is designed

(2) **Chip Control Geometry Designation —** example: MG-MV = CNMG-432MV

(3) **Primary Workpiece** Material Group

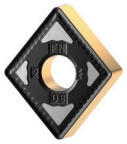
(4) **Chipbreaker Geometry —** section is through nose radius of insert

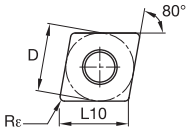
(5) **Feed Rate Range —** for best results, use the center 60% of the range

(6) **Depth-of-Cut Range —** for all inserts in the program, select smaller inserts for lighter cuts and larger inserts for heavy cuts

ISO/ANSI Turning Inserts

Kenloc™ • CNMG Insert • Negative • FN



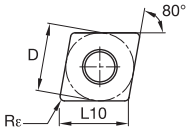


● first choice
○ alternate choice

P		●	●	●	●
M					○
K		●	○	○	
N					
S					
H					

ISO catalog number	ANSI catalog number	D mm	D in	L10 mm	L10 in	Rε mm	Rε in	KCPK05	KCP10B	KCP25C	KCP40B
CNMG090308FN	CNMG322FN	9,53	3/8	9,67	.381	0,8	1/32	–	●	–	–
CNMG120404FN	CNMG431FN	12,70	1/2	12,90	.508	0,4	1/64	–	●	●	–
CNMG120408FN	CNMG432FN	12,70	1/2	12,90	.508	0,8	1/32	–	●	●	–
CNMG120412FN	CNMG433FN	12,70	1/2	12,90	.508	1,2	3/64	–	●	●	–

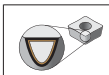
Kenloc • CNMG Insert • Negative • MV



● first choice
○ alternate choice

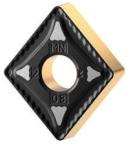
P		●	●	●	●
M					○
K		●	○	○	
N					
S					
H					

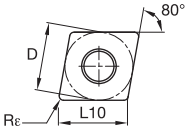
ISO catalog number	ANSI catalog number	D mm	D in	L10 mm	L10 in	Rε mm	Rε in	KCPK05	KCP10B	KCP25C	KCP40B
CNMG090304MV	CNMG321MV	9,53	3/8	9,67	.381	0,4	1/64	–	●	●	–
CNMG090308MV	CNMG322MV	9,53	3/8	9,67	.381	0,8	1/32	–	●	●	●
CNMG120404MV	CNMG431MV	12,70	1/2	12,90	.508	0,4	1/64	–	●	●	●
CNMG120408MV	CNMG432MV	12,70	1/2	12,90	.508	0,8	1/32	●	●	●	●
CNMG120412MV	CNMG433MV	12,70	1/2	12,90	.508	1,2	3/64	●	●	●	●
CNMG120416MV	CNMG434MV	12,70	1/2	12,90	.508	1,6	1/16	–	●	●	●
CNMG160608MV	CNMG542MV	15,88	5/8	16,12	.635	0,8	1/32	●	●	●	●
CNMG160612MV	CNMG543MV	15,88	5/8	16,12	.635	1,2	3/64	●	●	●	●
CNMG160616MV	CNMG544MV	15,88	5/8	16,12	.635	1,6	1/16	–	●	●	●
CNMG190608MV	CNMG642MV	19,05	3/4	19,34	.762	0,8	1/32	●	●	●	●
CNMG190612MV	CNMG643MV	19,05	3/4	19,34	.762	1,2	3/64	●	●	●	●
CNMG190616MV	CNMG644MV	19,05	3/4	19,34	.762	1,6	1/16	–	●	●	●
CNMG190624MV	CNMG646MV	19,05	3/4	19,34	.762	2,4	3/32	–	●	●	●

			
29	30	8–10	5

ISO/ANSI Turning Inserts

Kenloc™ • CNMG Insert • Negative • MN



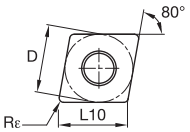


● first choice
○ alternate choice

P		●	●	●	●
M					○
K		●	○	○	
N					
S					
H					

ISO catalog number	ANSI catalog number	D mm	D in	L10 mm	L10 in	Rε mm	Rε in	KCPK05	KCP10B	KCP25C	KCP40B
CNMG090304MN	CNMG321MN	9,53	3/8	9,67	.381	0,4	1/64	–	–	●	–
CNMG090308MN	CNMG322MN	9,53	3/8	9,67	.381	0,8	1/32	–	●	●	–
CNMG120404MN	CNMG431MN	12,70	1/2	12,90	.508	0,4	1/64	–	●	●	●
CNMG120408MN	CNMG432MN	12,70	1/2	12,90	.508	0,8	1/32	●	●	●	●
CNMG120412MN	CNMG433MN	12,70	1/2	12,90	.508	1,2	3/64	–	●	●	●
CNMU120612MN	CNMU443MN	12,70	1/2	12,90	.508	1,2	3/64	–	●	–	–
CNMG120416MN	CNMG434MN	12,70	1/2	12,90	.508	1,6	1/16	–	●	●	–
CNMG160608MN	CNMG542MN	15,88	5/8	16,12	.635	0,8	1/32	–	●	●	–
CNMG160612MN	CNMG543MN	15,88	5/8	16,12	.635	1,2	3/64	–	●	●	–
CNMG160616MN	CNMG544MN	15,88	5/8	16,12	.635	1,6	1/16	–	●	●	–
CNMG190608MN	CNMG642MN	19,05	3/4	19,34	.762	0,8	1/32	–	–	●	–
CNMG190612MN	CNMG643MN	19,05	3/4	19,34	.762	1,2	3/64	–	–	●	–
CNMG190616MN	CNMG644MN	19,05	3/4	19,34	.762	1,6	1/16	–	●	●	–
CNMG190624MN	CNMG646MN	19,05	3/4	19,34	.762	2,4	3/32	–	–	●	–

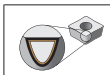
Kenloc • CNMG Insert • Negative • RP



● first choice
○ alternate choice

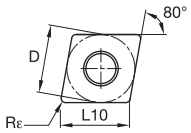
P		●	●	●	●
M					○
K		●	○	○	
N					
S					
H					

ISO catalog number	ANSI catalog number	D mm	D in	L10 mm	L10 in	Rε mm	Rε in	KCPK05	KCP10B	KCP25C	KCP40B
CNMG120404RP	CNMG431RP	12,70	1/2	12,90	.508	0,4	1/64	–	–	●	–
CNMG120408RP	CNMG432RP	12,70	1/2	12,90	.508	0,8	1/32	●	●	●	–
CNMG120412RP	CNMG433RP	12,70	1/2	12,90	.508	1,2	3/64	●	●	●	●
CNMG120416RP	CNMG434RP	12,70	1/2	12,90	.508	1,6	1/16	–	●	●	–
CNMG160608RP	CNMG542RP	15,88	5/8	16,12	.635	0,8	1/32	–	–	●	–
CNMG160612RP	CNMG543RP	15,88	5/8	16,12	.635	1,2	3/64	●	●	●	●
CNMG160616RP	CNMG544RP	15,88	5/8	16,12	.635	1,6	1/16	●	●	●	–
CNMG190612RP	CNMG643RP	19,05	3/4	19,34	.762	1,2	3/64	–	●	●	●
CNMG190616RP	CNMG644RP	19,05	3/4	19,34	.762	1,6	1/16	–	–	●	–

			
29	30	8–10	5

ISO/ANSI Turning Inserts

Kenloc™ • CNMG Insert • Negative • RN

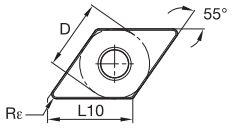


● first choice
○ alternate choice

P		●	●	●	●
M					○
K		●	○	○	
N					
S					
H					

ISO catalog number	ANSI catalog number	D mm	D in	L10 mm	L10 in	Rε mm	Rε in	KCPK05	KCP10B	KCP25C	KCP40B
CNMG120408RN	CNMG432RN	12,70	1/2	12,90	.508	0,8	1/32	●	●	●	●
CNMG120412RN	CNMG433RN	12,70	1/2	12,90	.508	1,2	3/64	●	●	●	●
CNMG120416RN	CNMG434RN	12,70	1/2	12,90	.508	1,6	1/16	–	●	●	●
CNMG160608RN	CNMG542RN	15,88	5/8	16,12	.635	0,8	1/32	–	●	●	–
CNMG160612RN	CNMG543RN	15,88	5/8	16,12	.635	1,2	3/64	●	●	●	●
CNMG160616RN	CNMG544RN	15,88	5/8	16,12	.635	1,6	1/16	●	●	●	●
CNMG190608RN	CNMG642RN	19,05	3/4	19,34	.762	0,8	1/32	–	●	–	–
CNMG190612RN	CNMG643RN	19,05	3/4	19,34	.762	1,2	3/64	–	●	●	●
CNMG190616RN	CNMG644RN	19,05	3/4	19,34	.762	1,6	1/16	●	●	●	●
CNMG190624RN	CNMG646RN	19,05	3/4	19,34	.762	2,4	3/32	–	–	●	–

Kenloc • DNMG Insert • Negative • FN

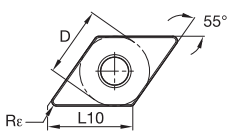


● first choice
○ alternate choice

P		●	●	●	●
M					○
K		●	○	○	
N					
S					
H					

ISO catalog number	ANSI catalog number	D mm	D in	L10 mm	L10 in	Rε mm	Rε in	KCPK05	KCP10B	KCP25C	KCP40B
DNMG110404FN	DNMG331FN	9,53	3/8	11,63	.458	0,4	1/64	–	●	●	–
DNMG110408FN	DNMG332FN	9,53	3/8	11,63	.458	0,8	1/32	–	●	●	–
DNMG110412FN	DNMG333FN	9,53	3/8	11,63	.458	1,2	3/64	–	●	–	–
DNMG150404FN	DNMG431FN	12,70	1/2	15,50	.610	0,4	1/64	–	●	●	–
DNMG150604FN	DNMG441FN	12,70	1/2	15,50	.610	0,4	1/64	–	●	●	–
DNMG150408FN	DNMG432FN	12,70	1/2	15,50	.610	0,8	1/32	●	●	●	–
DNMG150608FN	DNMG442FN	12,70	1/2	15,50	.610	0,8	1/32	–	●	●	–
DNMG150412FN	DNMG433FN	12,70	1/2	15,50	.610	1,2	3/64	–	●	–	–
DNMG150612FN	DNMG443FN	12,70	1/2	15,50	.610	1,2	3/64	–	●	–	–

Kenloc • DNMG Insert • Negative • MV



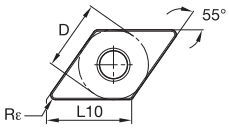
● first choice
○ alternate choice

P		●	●	●	●
M					○
K		●	○	○	
N					
S					
H					

ISO catalog number	ANSI catalog number	D mm	D in	L10 mm	L10 in	Rε mm	Rε in	KCPK05	KCP10B	KCP25C	KCP40B
DNMG110404MV	DNMG331MV	9,53	3/8	11,63	.458	0,4	1/64	–	●	●	–
DNMG110408MV	DNMG332MV	9,53	3/8	11,63	.458	0,8	1/32	●	●	●	–
DNMG110412MV	DNMG333MV	9,53	3/8	11,63	.458	1,2	3/64	–	●	●	–
DNMG150404MV	DNMG431MV	12,70	1/2	15,50	.610	0,4	1/64	–	●	●	–
DNMG150604MV	DNMG441MV	12,70	1/2	15,50	.610	0,4	1/64	–	●	●	–
DNMG150408MV	DNMG432MV	12,70	1/2	15,50	.610	0,8	1/32	●	●	●	●
DNMG150608MV	DNMG442MV	12,70	1/2	15,50	.610	0,8	1/32	●	●	●	●
DNMG150412MV	DNMG433MV	12,70	1/2	15,50	.610	1,2	3/64	–	●	●	●
DNMG150612MV	DNMG443MV	12,70	1/2	15,50	.610	1,2	3/64	–	●	●	●

ISO/ANSI Turning Inserts

Kenloc™ • DNMG Insert • Negative • MN

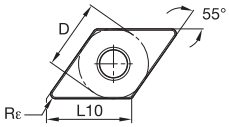


● first choice
○ alternate choice

P		●	●	●	●
M					○
K		●	○	○	
N					
S					
H					

ISO catalog number	ANSI catalog number	D mm	D in	L10 mm	L10 in	Rε mm	Rε in	KCPK05	KCP10B	KCP25C	KCP40B
DNMG110404MN	DNMG331MN	9,53	3/8	11,63	.458	0,4	1/64	–	●	●	–
DNMG110408MN	DNMG332MN	9,53	3/8	11,63	.458	0,8	1/32	–	●	●	–
DNMG110412MN	DNMG333MN	9,53	3/8	11,63	.458	1,2	3/64	–	–	●	–
DNMG150404MN	DNMG431MN	12,70	1/2	15,50	.610	0,4	1/64	–	●	●	–
DNMG150604MN	DNMG441MN	12,70	1/2	15,50	.610	0,4	1/64	–	●	●	–
DNMG150408MN	DNMG432MN	12,70	1/2	15,50	.610	0,8	1/32	●	●	●	–
DNMG150608MN	DNMG442MN	12,70	1/2	15,50	.610	0,8	1/32	–	●	●	–
DNMG150412MN	DNMG433MN	12,70	1/2	15,50	.610	1,2	3/64	–	●	●	●
DNMG150612MN	DNMG443MN	12,70	1/2	15,50	.610	1,2	3/64	–	●	●	●

Kenloc • DNMG Insert • Negative • RP



● first choice
○ alternate choice

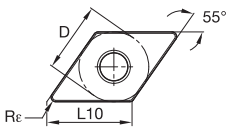
P		●	●	●	●
M					○
K		●	○	○	
N					
S					
H					

ISO catalog number	ANSI catalog number	D mm	D in	L10 mm	L10 in	Rε mm	Rε in	KCPK05	KCP10B	KCP25C	KCP40B
DNMG110408RP	DNMG332RP	9,53	3/8	11,63	.458	0,8	1/32	–	–	●	–
DNMG110412RP	DNMG333RP	9,53	3/8	11,63	.458	1,2	3/64	–	–	●	–
DNMG150408RP	DNMG432RP	12,70	1/2	15,50	.610	0,8	1/32	–	●	●	–
DNMG150608RP	DNMG442RP	12,70	1/2	15,50	.610	0,8	1/32	–	●	●	–
DNMG150412RP	DNMG433RP	12,70	1/2	15,50	.610	1,2	3/64	–	●	●	–
DNMG150612RP	DNMG443RP	12,70	1/2	15,50	.610	1,2	3/64	–	●	●	–
DNMG150616RP	DNMG444RP	12,70	1/2	15,50	.610	1,6	1/16	–	●	–	–

			
29	30	8–10	5

ISO/ANSI Turning Inserts

Kenloc™ • DNMG Insert • Negative • RN

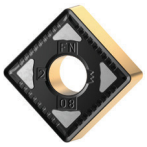


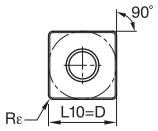
● first choice
○ alternate choice

P		●	●	●	●
M					○
K		●	○	○	
N					
S					
H					

ISO catalog number	ANSI catalog number	D mm	D in	L10 mm	L10 in	Rε mm	Rε in	KCPK05	KCP10B	KCP25C	KCP40B
DNMG150408RN	DNMG432RN	12,70	1/2	15,50	.610	0,8	1/32	–	●	●	–
DNMG150608RN	DNMG442RN	12,70	1/2	15,50	.610	0,8	1/32	●	●	●	●
DNMG150412RN	DNMG433RN	12,70	1/2	15,50	.610	1,2	3/64	●	●	●	●
DNMG150612RN	DNMG443RN	12,70	1/2	15,50	.610	1,2	3/64	●	●	●	●
DNMG150416RN	DNMG434RN	12,70	1/2	15,50	.610	1,6	1/16	–	–	●	–
DNMG150616RN	DNMG444RN	12,70	1/2	15,50	.610	1,6	1/16	–	–	●	●
DNMG190608RN	DNMG542RN	15,88	5/8	19,38	.763	0,8	1/32	–	●	–	–
DNMG190612RN	DNMG543RN	15,88	5/8	19,38	.763	1,2	3/64	–	●	–	–

Kenloc • SNMG Insert • Negative • FN



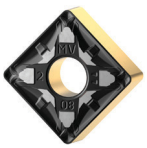


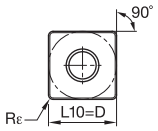
● first choice
○ alternate choice

P		●	●	●	●
M					○
K		●	○	○	
N					
S					
H					

ISO catalog number	ANSI catalog number	D mm	D in	L10 mm	L10 in	Rε mm	Rε in	KCPK05	KCP10B	KCP25C	KCP40B
SNMG120404FN	SNMG431FN	12,70	1/2	12,70	.500	0,4	1/64	–	●	●	–
SNMG120408FN	SNMG432FN	12,70	1/2	12,70	.500	0,8	1/32	–	●	●	–
SNMG120412FN	SNMG433FN	12,70	1/2	12,70	.500	1,2	3/64	–	–	●	–

Kenloc • SNMG Insert • Negative • MV

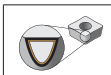




● first choice
○ alternate choice

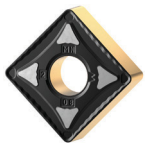
P		●	●	●	●
M					○
K		●	○	○	
N					
S					
H					

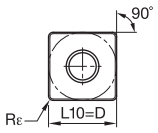
ISO catalog number	ANSI catalog number	D mm	D in	L10 mm	L10 in	Rε mm	Rε in	KCPK05	KCP10B	KCP25C	KCP40B
SNMG090308MV	SNMG322MV	9,53	3/8	9,53	.375	0,8	1/32	–	●	●	–
SNMG120404MV	SNMG431MV	12,70	1/2	12,70	.500	0,4	1/64	–	●	●	–
SNMG120408MV	SNMG432MV	12,70	1/2	12,70	.500	0,8	1/32	–	●	●	●
SNMG120412MV	SNMG433MV	12,70	1/2	12,70	.500	1,2	3/64	–	●	●	●
SNMG120416MV	SNMG434MV	12,70	1/2	12,70	.500	1,6	1/16	–	●	●	–
SNMG150612MV	SNMG543MV	15,88	5/8	15,88	.625	1,2	3/64	–	●	●	–
SNMG150616MV	SNMG544MV	15,88	5/8	15,88	.625	1,6	1/16	–	●	●	–
SNMG190612MV	SNMG643MV	19,05	3/4	19,05	.750	1,2	3/64	–	●	●	–
SNMG190616MV	SNMG644MV	19,05	3/4	19,05	.750	1,6	1/16	–	●	●	–

			
29	30	8–10	5

ISO/ANSI Turning Inserts

Kenloc™ • SNMG Insert • Negative • MN



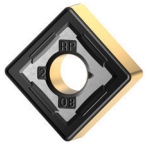


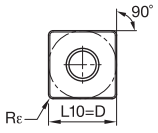
● first choice
○ alternate choice

P		●	●	●	●
M					○
K		●	○	○	
N					
S					
H					

ISO catalog number	ANSI catalog number	D mm	D in	L10 mm	L10 in	Rε mm	Rε in	KCPK05	KCP10B	KCP25C	KCP40B
SNMG090308MN	SNMG322MN	9,53	3/8	9,53	.375	0,8	1/32	–	●	●	–
SNMG120404MN	SNMG431MN	12,70	1/2	12,70	.500	0,4	1/64	–	●	●	–
SNMG120408MN	SNMG432MN	12,70	1/2	12,70	.500	0,8	1/32	–	●	●	●
SNMG120412MN	SNMG433MN	12,70	1/2	12,70	.500	1,2	3/64	–	●	●	–
SNMG120416MN	SNMG434MN	12,70	1/2	12,70	.500	1,6	1/16	–	–	●	–
SNMG150612MN	SNMG543MN	15,88	5/8	15,88	.625	1,2	3/64	–	●	●	–
SNMG150616MN	SNMG544MN	15,88	5/8	15,88	.625	1,6	1/16	–	–	●	–
SNMG190612MN	SNMG643MN	19,05	3/4	19,05	.750	1,2	3/64	–	–	●	–

Kenloc • SNMG Insert • Negative • RP





● first choice
○ alternate choice

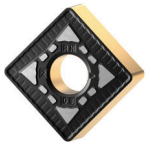
P		●	●	●	●
M					○
K		●	○	○	
N					
S					
H					

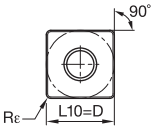
ISO catalog number	ANSI catalog number	D mm	D in	L10 mm	L10 in	Rε mm	Rε in	KCPK05	KCP10B	KCP25C	KCP40B
SNMG120408RP	SNMG432RP	12,70	1/2	12,70	.500	0,8	1/32	–	–	●	–
SNMG120412RP	SNMG433RP	12,70	1/2	12,70	.500	1,2	3/64	–	●	●	–
SNMG150612RP	SNMG543RP	15,88	5/8	15,88	.625	1,2	3/64	–	●	●	–
SNMG150616RP	SNMG544RP	15,88	5/8	15,88	.625	1,6	1/16	–	●	●	–
SNMG190612RP	SNMG643RP	19,05	3/4	19,05	.750	1,2	3/64	–	–	●	●
SNMG190616RP	SNMG644RP	19,05	3/4	19,05	.750	1,6	1/16	–	–	●	–

			
29	30	8–10	5

ISO/ANSI Turning Inserts

Kenloc™ • SNMG Insert • Negative • RN



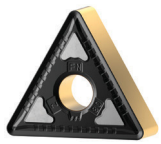


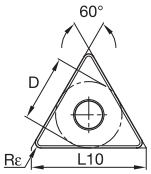
● first choice
○ alternate choice

P		●	●	●	●						
M					○						
K		●	○	○							
N											
S											
H											

ISO catalog number	ANSI catalog number	D mm	D in	L10 mm	L10 in	Rε mm	Rε in	KCPK05	KCP10B	KCP25C	KCP40B
SNMG120408RN	SNMG432RN	12,70	1/2	12,70	.500	0,8	1/32	–	–	●	●
SNMG120412RN	SNMG433RN	12,70	1/2	12,70	.500	1,2	3/64	●	●	●	●
SNMG120416RN	SNMG434RN	12,70	1/2	12,70	.500	1,6	1/16	–	●	●	●
SNMG150612RN	SNMG543RN	15,88	5/8	15,88	.625	1,2	3/64	●	●	●	●
SNMG150616RN	SNMG544RN	15,88	5/8	15,88	.625	1,6	1/16	●	–	●	–
SNMG190612RN	SNMG643RN	19,05	3/4	19,05	.750	1,2	3/64	–	●	●	–
SNMG190616RN	SNMG644RN	19,05	3/4	19,05	.750	1,6	1/16	●	–	●	●
SNMG250924	SNMG866	25,40	1	25,40	1.000	2,4	3/32	–	–	–	●

Kenloc • TNMG Insert • Negative • FN



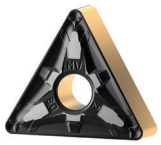


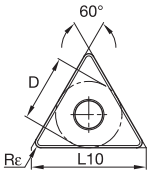
● first choice
○ alternate choice

P		●	●	●	●						
M					○						
K		●	○	○							
N											
S											
H											

ISO catalog number	ANSI catalog number	D mm	D in	L10 mm	L10 in	Rε mm	Rε in	KCPK05	KCP10B	KCP25C	KCP40B
TNMG160404FN	TNMG331FN	9,53	3/8	16,50	.650	0,4	1/64	–	●	●	–
TNMG160408FN	TNMG332FN	9,53	3/8	16,50	.650	0,8	1/32	–	●	●	–
TNMG160412FN	TNMG333FN	9,53	3/8	16,50	.650	1,2	3/64	–	●	–	–
TNMG220408FN	TNMG432FN	12,70	1/2	22,00	.866	0,8	1/32	–	●	–	–
TNMG220412FN	TNMG433FN	12,70	1/2	22,00	.866	1,2	3/64	–	●	–	–

Kenloc • TNMG Insert • Negative • MV

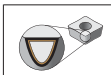




● first choice
○ alternate choice

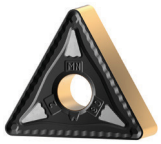
P		●	●	●	●						
M					○						
K		●	○	○							
N											
S											
H											

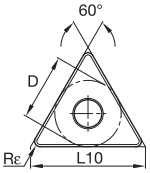
ISO catalog number	ANSI catalog number	D mm	D in	L10 mm	L10 in	Rε mm	Rε in	KCPK05	KCP10B	KCP25C	KCP40B
TNMG160404MV	TNMG331MV	9,53	3/8	16,50	.650	0,4	1/64	–	●	●	●
TNMG160408MV	TNMG332MV	9,53	3/8	16,50	.650	0,8	1/32	●	●	●	●
TNMG160412MV	TNMG333MV	9,53	3/8	16,50	.650	1,2	3/64	–	●	●	–
TNMG220404MV	TNMG431MV	12,70	1/2	22,00	.866	0,4	1/64	–	●	●	–
TNMG220408MV	TNMG432MV	12,70	1/2	22,00	.866	0,8	1/32	–	●	●	●
TNMG220412MV	TNMG433MV	12,70	1/2	22,00	.866	1,2	3/64	–	●	●	–

			
29	30	8–10	5

ISO/ANSI Turning Inserts

Kenloc™ • TNMG Insert • Negative • MN



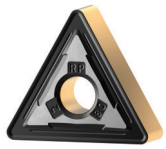


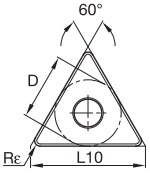
● first choice
○ alternate choice

P	●	●	●	●
M				○
K	●	○	○	
N				
S				
H				

ISO catalog number	ANSI catalog number	D mm	D in	L10 mm	L10 in	Rε mm	Rε in	KCPK05	KCP10B	KCP25C	KCP40B
TNMG160404MN	TNMG331MN	9,53	3/8	16,50	.650	0,4	1/64	–	●	●	–
TNMG160408MN	TNMG332MN	9,53	3/8	16,50	.650	0,8	1/32	–	●	●	–
TNMG160412MN	TNMG333MN	9,53	3/8	16,50	.650	1,2	3/64	–	●	●	–
TNMG220404MN	TNMG431MN	12,70	1/2	22,00	.866	0,4	1/64	–	–	●	–
TNMG220408MN	TNMG432MN	12,70	1/2	22,00	.866	0,8	1/32	–	●	●	–
TNMG220412MN	TNMG433MN	12,70	1/2	22,00	.866	1,2	3/64	–	●	●	●

Kenloc • TNMG Insert • Negative • RP



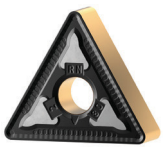


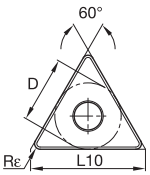
● first choice
○ alternate choice

P	●	●	●	●
M				○
K	●	○	○	
N				
S				
H				

ISO catalog number	ANSI catalog number	D mm	D in	L10 mm	L10 in	Rε mm	Rε in	KCPK05	KCP10B	KCP25C	KCP40B
TNMG160408RP	TNMG332RP	9,53	3/8	16,50	.650	0,8	1/32	–	●	●	–
TNMG160412RP	TNMG333RP	9,53	3/8	16,50	.650	1,2	3/64	–	●	●	–
TNMG220408RP	TNMG432RP	12,70	1/2	22,00	.866	0,8	1/32	–	●	●	●
TNMG220412RP	TNMG433RP	12,70	1/2	22,00	.866	1,2	3/64	–	–	●	–
TNMG220416RP	TNMG434RP	12,70	1/2	22,00	.866	1,6	1/16	–	–	●	–
TNMG220432RP	TNMG438RP	12,70	1/2	22,00	.866	3,2	1/8	–	●	–	–
TNMG330924RP	TNMG666RP	19,05	3/4	33,00	1.299	2,4	3/32	–	–	–	●

Kenloc • TNMG Insert • Negative • RN





● first choice
○ alternate choice

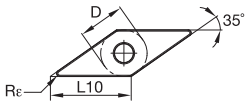
P	●	●	●	●
M				○
K	●	○	○	
N				
S				
H				

ISO catalog number	ANSI catalog number	D mm	D in	L10 mm	L10 in	Rε mm	Rε in	KCPK05	KCP10B	KCP25C	KCP40B
TNMG160408RN	TNMG332RN	9,53	3/8	16,50	.650	0,8	1/32	–	●	●	–
TNMG160412RN	TNMG333RN	9,53	3/8	16,50	.650	1,2	3/64	–	●	●	–
TNMG220408RN	TNMG432RN	12,70	1/2	22,00	.866	0,8	1/32	–	●	●	●
TNMG220412RN	TNMG433RN	12,70	1/2	22,00	.866	1,2	3/64	–	●	●	●
TNMG220416RN	TNMG434RN	12,70	1/2	22,00	.866	1,6	1/16	–	–	●	–
TNMG270612RN	TNMG543RN	15,88	5/8	27,50	1.083	1,2	3/64	–	–	–	●
TNMG270616RN	TNMG544RN	15,88	5/8	27,50	1.083	1,6	1/16	–	–	–	●
TNMG330924RN	TNMG666RN	19,05	3/4	33,00	1.299	2,4	3/32	–	●	–	●

			
29	30	8–10	5

ISO/ANSI Turning Inserts

Kenloc™ • VNMG Insert • Negative • FN

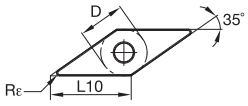


● first choice
○ alternate choice

P		●	●	●	●
M					○
K		●	○	○	
N					
S					
H					

ISO catalog number	ANSI catalog number	D mm	D in	L10 mm	L10 in	Rε mm	Rε in	KCPK05	KCP10B	KCP25C	KCP40B
VNMG160404FN	VNMG331FN	9,53	3/8	16,61	.654	0,4	1/64	–	●	●	–
VNMG160408FN	VNMG332FN	9,53	3/8	16,61	.654	0,8	1/32	–	●	●	–

Kenloc • VNMG Insert • Negative • MV

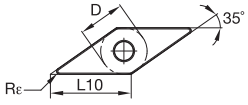


● first choice
○ alternate choice

P		●	●	●	●
M					○
K		●	○	○	
N					
S					
H					

ISO catalog number	ANSI catalog number	D mm	D in	L10 mm	L10 in	Rε mm	Rε in	KCPK05	KCP10B	KCP25C	KCP40B
VNMG160404MV	VNMG331MV	9,53	3/8	16,61	.654	0,4	1/64	–	●	●	–
VNMG160408MV	VNMG332MV	9,53	3/8	16,61	.654	0,8	1/32	●	●	●	●
VNMG160412MV	VNMG333MV	9,53	3/8	16,61	.654	1,2	3/64	–	●	●	–

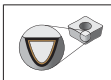
Kenloc • VNMG Insert • Negative • MN



● first choice
○ alternate choice

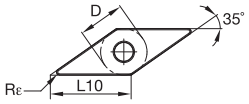
P		●	●	●	●
M					○
K		●	○	○	
N					
S					
H					

ISO catalog number	ANSI catalog number	D mm	D in	L10 mm	L10 in	Rε mm	Rε in	KCPK05	KCP10B	KCP25C	KCP40B
VNMG160404MN	VNMG331MN	9,53	3/8	16,61	.654	0,4	1/64	–	●	●	–
VNMG160408MN	VNMG332MN	9,53	3/8	16,61	.654	0,8	1/32	–	●	●	–
VNMG160412MN	VNMG333MN	9,53	3/8	16,61	.654	1,2	3/64	–	–	●	–

			
29	30	8–10	5

ISO/ANSI Turning Inserts

Kenloc™ • VNMG Insert • Negative • RP

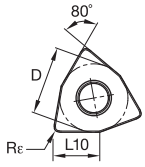


● first choice
○ alternate choice

P	●	●	●	●
M				○
K	●	○	○	
N				
S				
H				

ISO catalog number	ANSI catalog number	D mm	D in	L10 mm	L10 in	Rε mm	Rε in	KCPK05	KCP10B	KCP25C	KCP40B
VNMG160408RP	VNMG332RP	9,53	3/8	16,61	.654	0,8	1/32	–	–	●	–
VNMG160412RP	VNMG333RP	9,53	3/8	16,61	.654	1,2	3/64	–	–	●	–

Kenloc • WNMG Insert • Negative • FN

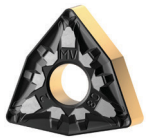


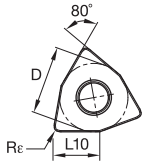
● first choice
○ alternate choice

P	●	●	●	●
M				○
K	●	○	○	
N				
S				
H				

ISO catalog number	ANSI catalog number	D mm	D in	L10 mm	L10 in	Rε mm	Rε in	KCPK05	KCP10B	KCP25C	KCP40B
WNMG060408FN	WNMG332FN	9,53	3/8	6,52	.257	0,8	1/32	–	–	●	–
WNMG080404FN	WNMG431FN	12,70	1/2	8,69	.342	0,4	1/64	–	●	●	–
WNMG080408FN	WNMG432FN	12,70	1/2	8,69	.342	0,8	1/32	–	●	●	–

Kenloc • WNMG Insert • Negative • MV





● first choice
○ alternate choice

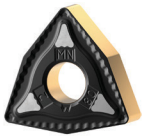
P	●	●	●	●
M				○
K	●	○	○	
N				
S				
H				

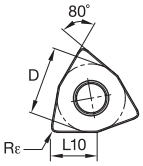
ISO catalog number	ANSI catalog number	D mm	D in	L10 mm	L10 in	Rε mm	Rε in	KCPK05	KCP10B	KCP25C	KCP40B
WNMG060408MV	WNMG332MV	9,52	3/8	6,52	.257	0,8	1/32	–	●	●	–
WNMG060412MV	WNMG333MV	9,53	3/8	6,52	.257	1,2	3/64	–	●	●	–
WNMG080408MV	WNMG432MV	12,70	1/2	8,69	.342	0,8	1/32	–	●	●	●
WNMG080412MV	WNMG433MV	12,70	1/2	8,69	.342	1,2	3/64	–	●	●	●
WNMG080416MV	WNMG434MV	12,70	1/2	8,69	.342	1,6	1/16	–	●	●	–

			
29	30	8–10	5

ISO/ANSI Turning Inserts

Kenloc™ • WNMG Insert • Negative • MN



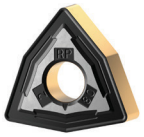


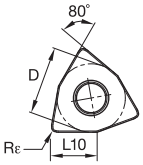
● first choice
○ alternate choice

P	●	●	●	●
M				○
K	●	○	○	
N				
S				
H				

ISO catalog number	ANSI catalog number	D mm	D in	L10 mm	L10 in	Rε mm	Rε in	KCPK05	KCP10B	KCP25C	KCP40B
WNMG060408MN	WNMG332MN	9,53	3/8	6,52	.257	0,8	1/32	–	●	●	–
WNMG080408MN	WNMG432MN	12,70	1/2	8,69	.342	0,8	1/32	–	●	●	–
WNMG080412MN	WNMG433MN	12,70	1/2	8,69	.342	1,2	3/64	–	●	●	●
WNMG080416MN	WNMG434MN	12,70	1/2	8,69	.342	1,6	1/16	–	–	●	–

Kenloc • WNMG Insert • Negative • RP



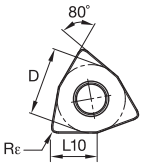


● first choice
○ alternate choice

P	●	●	●	●
M				○
K	●	○	○	
N				
S				
H				

ISO catalog number	ANSI catalog number	D mm	D in	L10 mm	L10 in	Rε mm	Rε in	KCPK05	KCP10B	KCP25C	KCP40B
WNMG060408RP	WNMG332RP	9,53	3/8	6,52	.257	0,8	1/32	–	●	●	–
WNMG060412RP	WNMG333RP	9,53	3/8	6,52	.257	1,2	3/64	–	–	●	–
WNMG080408RP	WNMG432RP	12,70	1/2	8,69	.342	0,8	1/32	●	●	●	●
WNMG080412RP	WNMG433RP	12,70	1/2	8,69	.342	1,2	3/64	●	●	●	–
WNMG080416RP	WNMG434RP	12,70	1/2	8,69	.342	1,6	1/16	–	–	●	–

Kenloc • WNMG Insert • Negative • RN



● first choice
○ alternate choice

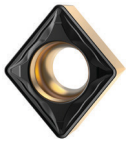
P	●	●	●	●
M				○
K	●	○	○	
N				
S				
H				

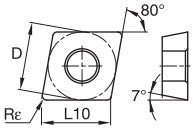
ISO catalog number	ANSI catalog number	D mm	D in	L10 mm	L10 in	Rε mm	Rε in	KCPK05	KCP10B	KCP25C	KCP40B
WNMG060408RN	WNMG332RN	9,53	3/8	6,52	.257	0,8	1/32	–	●	●	–
WNMG060412RN	WNMG333RN	9,53	3/8	6,52	.257	1,2	3/64	–	–	●	–
WNMG080408RN	WNMG432RN	12,70	1/2	8,69	.342	0,8	1/32	–	●	●	–
WNMG080412RN	WNMG433RN	12,70	1/2	8,69	.342	1,2	3/64	●	●	●	●
WNMG080416RN	WNMG434RN	12,70	1/2	8,69	.342	1,6	1/16	–	●	●	–

29	30	8–10	5

ISO/ANSI Turning Inserts

Screw-On • CCMT Insert • Positive • FP



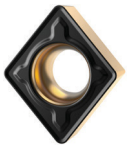


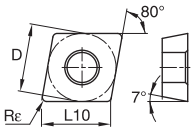
● first choice
○ alternate choice

P		●	●	●	●
M					○
K		●	○	○	
N					
S					
H					

ISO catalog number	ANSI catalog number	D mm	D in	L10 mm	L10 in	Rε mm	Rε in	KCPK05	KCP10B	KCP25C	KCP40B
CCMT060204FP	CCMT2151FP	6,35	1/4	6,45	.254	0,4	1/64	–	●	●	–
CCMT060208FP	CCMT2152FP	6,35	1/4	6,45	.254	0,8	1/32	–	–	●	–
CCMT09T302FP	CCMT32505FP	9,53	3/8	9,67	.381	0,2	.008	–	–	●	–
CCMT09T304FP	CCMT3251FP	9,53	3/8	9,67	.381	0,4	1/64	–	●	●	–
CCMT09T308FP	CCMT3252FP	9,53	3/8	9,67	.381	0,8	1/32	–	●	●	–
CCMT120404FP	CCMT431FP	12,70	1/2	12,90	.508	0,4	1/64	–	●	●	–
CCMT120408FP	CCMT432FP	12,70	1/2	12,90	.508	0,8	1/32	–	–	●	–

Screw-On • CCMT Insert • Positive • MF



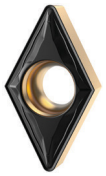


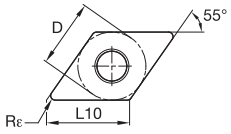
● first choice
○ alternate choice

P		●	●	●	●
M					○
K		●	○	○	
N					
S					
H					

ISO catalog number	ANSI catalog number	D mm	D in	L10 mm	L10 in	Rε mm	Rε in	KCPK05	KCP10B	KCP25C	KCP40B
CCMT060204MF	CCMT2151MF	6,35	1/4	6,45	.254	0,4	1/64	–	●	●	–
CCMT060208MF	CCMT2152MF	6,35	1/4	6,45	.254	0,8	1/32	–	–	●	–
CCMT09T304MF	CCMT3251MF	9,53	3/8	9,67	.381	0,4	1/64	–	●	●	–
CCMT09T308MF	CCMT3252MF	9,53	3/8	9,67	.381	0,8	1/32	–	●	●	–
CCMT09T312MF	CCMT3253MF	9,53	3/8	9,67	.381	1,2	3/64	–	–	●	–
CCMT120408MF	CCMT432MF	12,70	1/2	12,90	.508	0,8	1/32	–	●	●	–
CCMT120412MF	CCMT433MF	12,70	1/2	12,90	.508	1,2	3/64	–	–	●	–

Screw-On • DCMT Insert • Positive • FP





● first choice
○ alternate choice

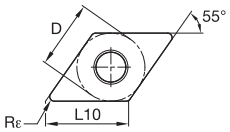
P		●	●	●	●
M					○
K		●	○	○	
N					
S					
H					

ISO catalog number	ANSI catalog number	D mm	D in	L10 mm	L10 in	Rε mm	Rε in	KCPK05	KCP10B	KCP25C	KCP40B
DCMT070202FP	DCMT21505FP	6,35	1/4	7,75	.305	0,2	.008	–	–	●	–
DCMT070204FP	DCMT2151FP	6,35	1/4	7,75	.305	0,4	1/64	–	–	●	–
DCMT070208FP	DCMT2152FP	6,35	1/4	7,75	.305	0,8	1/32	–	–	●	–
DCMT11T302FP	DCMT32505FP	9,53	3/8	11,63	.458	0,2	.008	–	●	●	–
DCMT11T304FP	DCMT3251FP	9,53	3/8	11,63	.458	0,4	1/64	–	●	●	–
DCMT11T308FP	DCMT3252FP	9,53	3/8	11,63	.458	0,8	1/32	–	●	●	–

29	30	8–10	5

ISO/ANSI Turning Inserts

Screw-On • DCMT Insert • Positive • MF

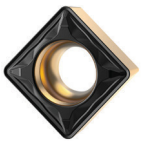


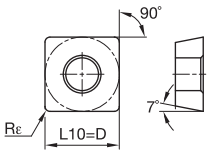
● first choice
○ alternate choice

P	●	●	●	●
M				○
K	●	○	○	
N				
S				
H				

ISO catalog number	ANSI catalog number	D mm	D in	L10 mm	L10 in	Rε mm	Rε in	KCPK05	KCP10B	KCP25C	KCP40B
DCMT11T304MF	DCMT3251MF	9,53	3/8	11,63	.458	0,4	1/64	–	●	●	–
DCMT11T308MF	DCMT3252MF	9,53	3/8	11,63	.458	0,8	1/32	–	●	●	–
DCMT11T312MF	DCMT3253MF	9,53	3/8	11,63	.458	1,2	3/64	–	●	●	–

Screw-On • SCMT Insert • Positive • FP



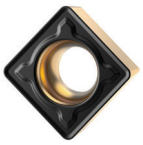


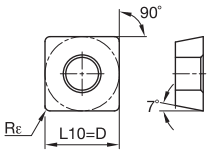
● first choice
○ alternate choice

P	●	●	●	●
M				○
K	●	○	○	
N				
S				
H				

ISO catalog number	ANSI catalog number	D mm	D in	L10 mm	L10 in	Rε mm	Rε in	KCPK05	KCP10B	KCP25C	KCP40B
SCMT09T304FP	SCMT3251FP	9,53	3/8	9,53	.375	0,4	1/64	–	–	●	–
SCMT09T308FP	SCMT3252FP	9,53	3/8	9,53	.375	0,8	1/32	–	–	●	–
SCMT120404FP	SCMT431FP	12,70	1/2	12,70	.500	0,4	1/64	–	–	●	–
SCMT120408FP	SCMT432FP	12,70	1/2	12,70	.500	0,8	1/32	–	–	●	–

Screw-On • SCMT Insert • Positive • MF

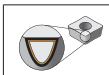




● first choice
○ alternate choice

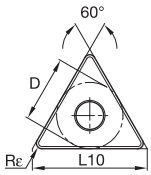
P	●	●	●	●
M				○
K	●	○	○	
N				
S				
H				

ISO catalog number	ANSI catalog number	D mm	D in	L10 mm	L10 in	Rε mm	Rε in	KCPK05	KCP10B	KCP25C	KCP40B
SCMT09T308MF	SCMT3252MF	9,53	3/8	9,53	.375	0,8	1/32	–	●	●	–
SCMT09T312MF	SCMT3253MF	9,53	3/8	9,53	.375	1,2	3/64	–	–	●	–
SCMT120404MF	SCMT431MF	12,70	1/2	12,70	.500	0,4	1/64	–	–	●	–
SCMT120408MF	SCMT432MF	12,70	1/2	12,70	.500	0,8	1/32	–	–	●	–
SCMT120412MF	SCMT433MF	12,70	1/2	12,70	.500	1,2	3/64	–	–	●	–

			
29	30	8–10	5

ISO/ANSI Turning Inserts

Screw-On • TCMT Insert • Positive • FP

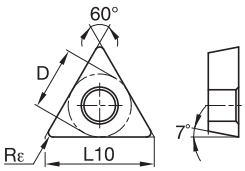


● first choice
○ alternate choice

P	●	●	●	●
M				○
K	●	○	○	
N				
S				
H				

ISO catalog number	ANSI catalog number	D mm	D in	L10 mm	L10 in	Rε mm	Rε in	KCPK05	KCP10B	KCP25C	KCP40B
TCMT090204FP	TCMT18151FP	5,56	7/32	9,62	.379	0,4	1/64	–	–	●	–
TCMT110204FP	TCMT2151FP	6,35	1/4	11,00	.433	0,4	1/64	–	–	●	–
TCMT110304FP	TCMT221FP	6,35	1/4	11,00	.433	0,4	1/64	–	●	–	–
TCMT110208FP	TCMT2152FP	6,35	1/4	11,00	.433	0,8	1/32	–	–	●	–
TCMT16T304FP	TCMT3251FP	9,53	3/8	16,50	.650	0,4	1/64	–	–	●	–
TCMT16T308FP	TCMT3252FP	9,53	3/8	16,50	.650	0,8	1/32	–	–	●	–

Screw-On • TCMT Insert • Positive • MF

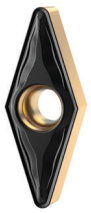


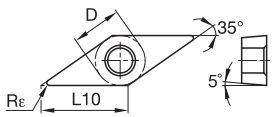
● first choice
○ alternate choice

P	●	●	●	●
M				○
K	●	○	○	
N				
S				
H				

ISO catalog number	ANSI catalog number	D mm	D in	L10 mm	L10 in	Rε mm	Rε in	KCPK05	KCP10B	KCP25C	KCP40B
TCMT110204MF	TCMT2151MF	6,35	1/4	11,00	.433	0,4	1/64	–	–	●	–
TCMT110208MF	TCMT2152MF	6,35	1/4	11,00	.433	0,8	1/32	–	–	●	–
TCMT16T308MF	TCMT3252MF	9,53	3/8	16,50	.650	0,8	1/32	–	–	●	–
TCMT16T312MF	TCMT3253MF	9,53	3/8	16,50	.650	1,2	3/64	–	–	●	–

Screw-On • VBMT Insert • Positive • FP





● first choice
○ alternate choice

P	●	●	●	●
M				○
K	●	○	○	
N				
S				
H				

ISO catalog number	ANSI catalog number	D mm	D in	L10 mm	L10 in	Rε mm	Rε in	KCPK05	KCP10B	KCP25C	KCP40B
VBMT160404FP	VBMT331FP	9,53	3/8	16,61	.654	0,4	1/64	–	●	●	–
VBMT160408FP	VBMT332FP	9,53	3/8	16,61	.654	0,8	1/32	–	●	●	–
VBMT160412FP	VBMT333FP	9,53	3/8	16,61	.654	1,2	3/64	–	●	●	–

29	30	8–10	5

Grades and Grade Descriptions

Turning

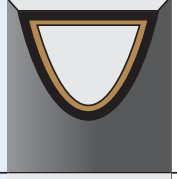
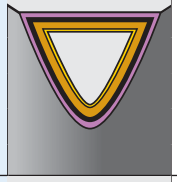
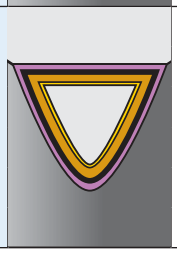
NEW!

KENGold™ | The Gold Standard in Coating Technology

wear resistance ⟷ toughness

Coating	Grade Description		05	10	15	20	25	30	35	40	45
KCP25C 	Composition: A tough cobalt-enriched carbide grade with a newly designed advanced multilayer MTCVD TiCN-Al_2O_3 coating with a gold TiN outer layer on the flank. Application: Primarily the best general-purpose turning grade for steels and ferritic/martensitic stainless steels with alternate capability in heavy cast iron roughing. The substrate design provides an excellent combination of deformation resistance and insert edge strength. Coating layers offer superior wear resistance, enabling increased speeds and productivity. A targeted post-coat treatment minimizes microchipping and enables improved part finishes while retaining the bright gold color on the flank so that used/unused cutting edges can clearly be identified.	P				■	■	■			
		K							■	■	

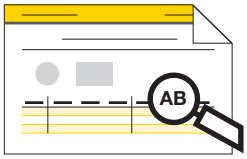
wear resistance ⟷ toughness

Coating	Grade Description		05	10	15	20	25	30	35	40	45
KCPK05 	Composition: A deformation-resistant, cobalt-enriched substrate combined with a thick MTCVD TiCN-Al_2O_3 coating. Application: Primarily for high-productivity turning of steels in continuous to lightly interrupted cuts. Its unique combination of substrate and coating also makes it an alternate choice as a roughing grade for cast iron where chipping resistance is required. This grade provides an excellent combination of deformation resistance and high-speed capability, allowing the fastest steel part production.	P	■	■	■						
		K					■	■	■		
KCP10B 	Composition: A specially engineered wear-resistant cobalt-enriched carbide grade with a multilayer MTCVD TiCN-Al_2O_3-TiOCN coating with superior interlayer adhesion. Application: Primarily an excellent finishing to medium machining grade for steels, ferritic, and martensitic steels. Alternatively it can also be used for heavy roughing of cast irons. The cobalt-enriched substrate offers a balanced combination of deformation resistance and edge toughness, while the smooth thick coating adds outstanding abrasion and crater wear resistance for high-speed machining with excellent surface finishes.	P		■	■	■					
		K						■	■		
KCP40B 	Composition: A very tough cobalt-enriched carbide grade with a thin multilayer MTCVD TiCN-Al_2O_3-TiOCN coating. Application: Primarily for heavy roughing of carbon steels, alloy steels, and ferritic/martensitic stainless steels. It is also an alternative choice for roughing of austenitic and duplex stainless steels. The strong substrate and thin coating combination provides superior toughness and operational security, allowing high feeds and depths of cut for increased metal removal rates even in demanding interrupted cuts.	P							■	■	■
		M				■	■	■			

Grades

General Information

Key to Product Table Column Headings



You may notice a slight change in the appearance of our product tables and specification charts. In this catalog, Kennametal introduces a set of short-name codes to improve the readability of tables and drawings. These codes replace full-text descriptions. The full list of codes and their definitions can be found below.

Short-Name Code	Full Text Description
D	Insert: Insert IC Size
L10	Insert Cutting Edge Length
Rε	Corner Radius

Material Cross Reference • ANSI

P	Steel	N	Non-Ferrous	H	Hardened Materials
M	Stainless Steel	S	High-Temp Alloys	C	CFRP Materials
K	Cast Iron				

material group	description	content	tensile strength RM (MPa)*	hardness (HB)	hardness (HRC)	material number
P0	Low-Carbon Steels, Long Chipping	C <0,25%	<530	<125	–	A36, 1008, 1010, 1018 through 1029; 1108, 1117
P1	Low-Carbon Steels, Short Chipping, Free Machining	C <0,25%	<530	<125	–	10L18, 1200 Series, 1213, 12L14
P2	Medium- and High-Carbon Steels	C >0,25%	>530	<220	<25	1035, 1045, 10L45, 1050, 10L50, 1080, 1137, 1144, 11L44, 1525, 1545, 1572
P3	Alloy Steels and Tool Steels	C >0,25%	600–850	<330	<35	1300, 2000, 3000, 4000, 5000, 8000, P20, SAE: A, D, H, O, S, M, T
P4	Alloy Steels and Tool Steels	C >0,25%	850–1400	340–450	35–48	1300, 2000, 3000, 4000, 5000, 8000, P20, SAE: A, D, H, O, S, M, T
P5	Ferritic, Martensitic, and PH Stainless Steels	–	600–900	<330	<35	15–5 PH, 13–8 PH, 17–4 PH, 400 and 500 Series
P6	High-Strength Ferritic, Martensitic, and PH Stainless Steels	–	900–1350	350–450	35–48	15–5 PH, 13–8 PH, 17–4 PH, 400 and 500 Series
M1	Austenitic Stainless Steel	–	<600	130–200	–	200 Series, 301, 302, 304, 304L, 309
M2	High-Strength Austenitic Stainless and Cast Stainless Steels	–	600–800	150–230	<25	310, 316, 316L, 321, 347, 384 ASTM Cast XM-1, XM-5, XM-7, XM-21
M3	Duplex Stainless Steel	–	<800	135–275	<30	323, 329, F55, 2205, S329000
K1	Gray Cast Iron	–	125–500	120–290	<32	Class 20, 25, 30, 35, 40, 45, 50, 55, 60, G1800, G3000, G3500, G4000
K2	Low- and Medium-Strength Ductile Irons (Nodular Irons) and Compacted Graphite Irons (CGI)	–	<600	130–260	<28	60-40-18, 65-45-12, 80-55-06; SAE J434: D4018, D4512, D5506; ASTM A47: Grade 32510, 35018; SAE J158: Grade M3210, M4504, M5003, M5503, M7002; ASTMA842: Grade 250, 300, 350, 400, 450
K3	High-Strength Ductile Irons and Austempered Ductile Iron (ADI)	–	>600	180–350	<43	ASTM A536:100-70-03, 120-90-02, SAE J434: D7003, SAE J158: Grade M8501AST A897: 125-80-10, 150-100-7, 175-125-4, 200-150-1, 230-185
N1	Wrought Aluminum	–	–	–	–	2025, 5050, 7050, 1000, 2017
N2	Low-Silicon Aluminum Alloys and Magnesium Alloys	Si <12,2%	–	–	–	2024, 6061, 7075
N3	High-Silicon Aluminum Alloys and Magnesium Alloys	Si >12,2%	–	–	–	–
N4	Copper-, Brass-, Zinc-Based on Machinability Index Range of 70–100	–	–	–	–	C81500
N5	Nylon, Plastics, Rubbers, Phenolics, Resins, Fiberglass	–	–	–	–	–
N6	Carbon, Graphite Composites, CFRP	–	–	–	–	Graphite, CFK, CFRP
N7	Metal Matrix Composites (MMC)	–	–	–	–	C63000
S1	Iron-Based, Heat-Resistant Alloys	–	500–1200	160–260	25–48	A-286, INCOLOY® 800 Series, A608, A567, Discaloy™, INVAR®, N-155, 16-25-6, 19-9 DL; Cast: ASTM A-297, A-351, A-567, A-608
S2	Cobalt-Based, Heat-Resistant Alloys	–	1000–1450	250–450	25–48	Haynes® 25 (L605), Haynes 188, J-1570, Stellite™, AiResist 213; Cast: AiResist 13, Haynes 21, MAR-M302, MAR-M509, NASA Co-W-Re, WI-52
S3	Nickel-Based, Heat-Resistant Alloys	–	600–1700	160–450	<48	Astroloy™, Hastelloy® B/C/ C-276 /X, INCONEL® 600 and 700 Series, IN102, INCOLOY® 900 Series, Rene 41, Waspaloy®, MONEL®, K-500, MAR-M20, NIMONIC®, UDIMET®
S4	Titanium and Titanium Alloys	–	900–1600	300–400	33–48	Pure: Ti 98.8, Ti 98.9,Ti 99.9; Alloyed: Ti 5Al-2.5Sn, Ti6Al-4V, Ti6Al-2Sn-4Zr-2Mo, Ti-3Al-8V-6Cr-4Mo-4Zr, Ti-10V-2Fe-3Al, Ti-13V-11Cr-3Al
H1	Hardened Materials	–	–	–	44–48	Tool Steel H10, H11, H13, D2, D3, 4340, P20
H2	Hardened Materials	–	–	–	48–55	Tool Steel H10, H11, H13, D2, D3, 4340, P20
H3	Hardened Materials	–	–	–	56–60	Tool Steel H10, H11, H13, D2, D3, 4340, P20
H4	Hardened Materials	–	–	–	>60	Tool Steel H10, H11, H13, D2, D3, 4340, P20
C1	CFRP, CFRP/CFRP	–	–	–	–	–
C2	CFRP/Non-Ferrous	–	–	–	–	–
C3	CFRP/High-Temp	–	–	–	–	–
C4	CFRP/Stainless Steel	–	–	–	–	–
C5	CFRP/Non-Ferrous/High-Temp	–	–	–	–	–

Material Cross Reference • DIN

P Steel
M Stainless Steel
K Cast Iron

N Non-Ferrous
S High-Temp Alloys

H Hardened Materials
C CFRP Materials

material group	description	content	tensile strength RM (MPa)*	hardness (HB)	hardness (HRC)	material number
P0	Low-Carbon Steels, Long Chipping	C <0,25%	<530	<125	–	–
P1	Low-Carbon Steels, Short Chipping, Free Machining	C <0,25%	<530	<125	–	C15, Ck22, ST37-2, S235JR, 9SMnPb28, GS38
P2	Medium- and High-Carbon Steels	C >0,25%	>530	<220	<25	ST52, S355JR, C35, GS60, Cf53
P3	Alloy Steels and Tool Steels	C >0,25%	600–850	<330	<35	16MnCr5, Ck45, 21CrMoV5-7, 38SMn28
P4	Alloy Steels and Tool Steels	C >0,25%	850–1400	340–450	35–48	100Cr6, 30CrNiMo8, 42CrMo4, C70W2, S6525, X120Mn12
P5	Ferritic, Martensitic, and PH Stainless Steels	–	600–900	<330	<35	100Cr6, 30CrNiMo8, 42CrMo4, C70W2, S6525, X120Mn12
P6	High-Strength Ferritic, Martensitic, and PH Stainless Steels	–	900–1350	350–450	35–48	X102CrMo17, G-X120Cr29
M1	Austenitic Stainless Steel	–	<600	130–200	–	X5CrNi 18 10, X2CrNiMo 17 13 2, G-X25CrNiSi18 9, X15CrNiSi 20 12
M2	High-Strength Austenitic Stainless and Cast Stainless Steels	–	600–800	150–230	<25	X2CrNiMo 13 4, X5NiCr 32 21, X5CrNiNb 18 10, G-X15CrNi 25-20
M3	Duplex Stainless Steel	–	<800	135–275	<30	X8CrNiMo27 5, X2CrNiMoN22 5 3, X20CrNiSi25 4, G-X40CrNiSi27 4
K1	Gray Cast Iron	–	125–500	120–290	<32	GG15, GG25, GG30, GG40, GTW40
K2	Low- and Medium-Strength Ductile Irons (Nodular Irons) and Compacted Graphite Irons (CGI)	–	<600	130–260	<28	GGG40, GTS35
K3	High-Strength Ductile Irons and Austempered Ductile Iron (ADI)	–	>600	180–350	<43	GGG60, GTW55, GTS65
N1	Wrought Aluminum	–	–	–	–	AlMg1, Al99.5, AlCuMg1, AlCuBiPb, AlMgSi1, ALMgSiPb
N2	Low-Silicon Aluminum Alloys and Magnesium Alloys	Si <12,2%	–	–	–	GAlSiCu4, GDAlSi10Mg
N3	High-Silicon Aluminum Alloys and Magnesium Alloys	Si >12,2%	–	–	–	G-ALSi12, G-AlSi17Cu4, G-AlSi21CuNiMg
N4	Copper-, Brass-, Zinc-Based on Machinability Index Range of 70–100	–	–	–	–	CuZn40, Ms60, G-CuSn5ZnPb, CuZn37, CuSi3Mn
N5	Nylon, Plastics, Rubbers, Phenolics, Resins, Fiberglass	–	–	–	–	LEXAN®, HOSTALEN™, POLYSTYROL®, MAKROLON®
N6	Carbon, Graphite Composites, CFRP	–	–	–	–	CFK, GFK
N7	Metal Matrix Composites (MMC)	–	–	–	–	–
S1	Iron-Based, Heat-Resistant Alloys	–	500–1200	160–260	25–48	X1NiCrMoCu32 28 7, X12NiCrSi36 16, X5NiCrAlTi31 20, X40CoCrNi20 20
S2	Cobalt-Based, Heat-Resistant Alloys	–	1000–1450	250–450	25–48	Haynes® 188, Stellite™ 6,21,31
S3	Nickel-Based, Heat-Resistant Alloys	–	600–1700	160–450	<48	INCONEL® 690, INCONEL 625, Hastelloy®, NIMONIC® 75
S4	Titanium and Titanium Alloys	–	900–1600	300–400	33–48	Ti1, TiAl5Sn2, TiAl6V4, TiAl4Mo4Sn2
H1	Hardened Materials	–	–	–	44–48	GX260NiCr42, GX330NiCr42, GX300CrNiSi952, GX300CrMo153, Hardox® 400
H2	Hardened Materials	–	–	–	48–55	–
H3	Hardened Materials	–	–	–	56–60	–
H4	Hardened Materials	–	–	–	>60	–
C1	CFRP, CFRP/CFRP	–	–	–	–	–
C2	CFRP/Non-Ferrous	–	–	–	–	–
C3	CFRP/High-Temp	–	–	–	–	–
C4	CFRP/Stainless Steel	–	–	–	–	–
C5	CFRP/Non-Ferrous/High-Temp	–	–	–	–	–

METALCUTTING SAFETY

IMPORTANT SAFETY INSTRUCTIONS

Read before using the tools in this catalog!

Projectile and Fragmentation Hazards:

Modern metalcutting operations involve high spindle and cutter speeds and high temperatures and cutting forces. Hot metal chips may fly off the workpiece during metalcutting. Although cutting tools are designed and manufactured to withstand high cutting forces and temperatures, they can sometimes fragment, particularly if they are subjected to over-stress, severe impact, or other abuse.

To avoid injury:

- Always wear appropriate personal protective equipment, including safety goggles, when operating metalcutting machines or working nearby.
- Always make sure all machine guards are in place.

Breathing and Skin Contact Hazards:

Grinding carbide or other advanced cutting tool materials produces dust or mist containing metallic particles. Breathing this dust or mist — especially over an extended period — can cause temporary or permanent lung disease or make existing medical conditions worse. Contact with this dust or mist can irritate eyes, skin, and mucous membranes and may make existing skin conditions worse.

To avoid injury:

- Always wear breathing protection and safety goggles when grinding.
- Provide ventilation control and collect and properly dispose of dust, mist, or sludge from grinding.
- Avoid skin contact with dust or mist.

For more information, read the applicable Material Safety Data Sheet provided by Kennametal and consult General Industry Safety and Health Regulations, Part 1910, Title 29 of the Code of Federal Regulations.

These safety instructions are general guidelines. Many variables affect machining operations. It is impossible to cover every specific situation. The technical information included in this catalog and recommendations on machining practices may not apply to your particular operation. For more information, consult the Kennametal Metalcutting Safety booklet, available free from Kennametal at 724 539 5747 or fax 724 539 5439. For specific product safety and environmental questions, contact our Corporate Environmental Health and Safety Office at 724 539 5066 or fax 724 539 5372.

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